What is claimed is:

1. A method of plating a conductive top surface of a workpiece, the conductive top surface of the workpiece including a top portion and a cavity portion, the method comprising the steps of:

applying, over the conductive top surface of the workpiece, an electrolyte solution with at least one additive disposed therein, a first portion of the additive becoming adsorbed on the top portion and a second portion of the additive becoming adsorbed on the cavity portion;

applying a mask in spaced relation to the top portion of the workpiece and moving the mask relative to the workpiece to remove from the top portion of the workpiece a part of the first portion of the additive previously adsorbed on the top portion through an indirect external influence; and

plating the conductive top surface of the workpiece before the additive fully re-adsorbs onto the top portion and while the mask is maintained in at least the spaced relation to the top portion of the workpiece, thereby causing greater plating of the cavity portion relative to the top portion.

2. The method according to claim 1 wherein the step of applying applies the mask to within .75 mm of the top surface of the workpiece.

3. The method according to claim 1 wherein the step of applying applies the mask to within a range of 0.1 to 0.5 mm of the top surface of the workpiece.

4. The method according to claim 3 wherein the relative movement is at a speed

between the range of 1 to 100 cm/s.

5. The method according to claim 1 wherein the at least one additive includes an accelerator.

6. The method according to claim 5 wherein, during the step of plating, more additive is adsorbed on the cavity portion than on the top portion.

7. The method according to claim 6 wherein the step of plating takes place only before the part of the first portion of the additive that was removed fully re-adsorbs.

8. The method according to claim 6 wherein the steps of applying the external influence, removing the mask, and plating are repeated.

9. The method according to claim 1 wherein the at least one additive includes a plurality of additives, comprising both an inhibitor and an accelerator.

10. The method according to claim 9 wherein, the step of applying the external influence removes a greater percentage of the accelerator than the inhibitor as a result of the inhibitor having a stronger adsorption characteristic than the accelerator.

11. The method according to claim 10 wherein the step of plating takes place only before the accelerator that was removed fully re-adsorbs onto the top portion.

12. The method according to claim 11 wherein the steps of applying the external influence, removing the mask and plating are repeated.

13. The method according to claim 9 wherein, after the step of applying the external influence, the inhibitor re-adsorbs more quickly than the accelerator onto the top portion of the workpiece.

14. The method according to claim 13 wherein the step of plating takes place during and after the inhibitor re-adsorbs and before the accelerator that was removed fully re-adsorbs onto the top portion.

15. The method according to claim 14 wherein the steps of applying the external influence, and plating are repeated.

16. The method according to claim 1 wherein the step of plating includes moving the mask further away from the top surface of the workpiece.

17. The method according to claim 1 wherein the step of plating includes the step of providing pulsed power during plating.

18. The method according to claim 1 wherein the step of applying the external influence causes an area of the top portion which had previously been subjected to the external influence to align with an open area of the mask so that during the step of plating a plating current exists between the area of the workpiece and an anode.

19. The method according to claim 18 wherein during the step of plating, a current pulse with a first current density is formed within the open area of the movable mask between the anode and the area of the workpiece, the first current density being greater than a second current density that exists in another area of the workpiece that is covered by the moveable mask.

20. The method according to claim 19 wherein, over a period of time, a plurality of current pulses are formed between the anode and different areas of the workpiece.

21. The method according to claim 20 wherein the plurality of current pulses, summed together, equal a DC current provided by a power source.

22. The method according to claim 18 wherein the step of plating includes the step of providing DC power during plating.

23. The method according to claim 22 wherein the step of providing DC power operates in a current controlled mode in which a plating current is held substantially constant.

24. The method according to claim 22 wherein the step of providing DC power operates in a voltage controlled mode in which a plating voltage is held substantially constant.

25. The method according to claim 1 wherein the step of plating includes the step of providing DC power during plating.

26. The method according to claim 1 wherein the step of plating plates copper.

27. The method according to claim 1 wherein the step of plating plates a copper alloy.

28. The method according to claim 1 wherein the step of applying the external influence to the top portion causes a differential in a surface resistance between the top portion and the cavity portion.

29. The method according to claim 1 further including the step of adding another additive to the electrolyte that assists in loosening a bond between the additive and the surface of the workpiece.

30. A method of plating a conductive top surface of a workpiece, the conductive top surface of the workpiece including a top portion and a cavity portion, the method comprising the steps of:

applying an electrolyte solution with at least one additive disposed therein over the conductive top surface of the workpiece;

applying a mask in spaced relation to the top portion of the workpiece and moving the mask relative to the workpiece to create an effect such that the at least one additive will enhance plating on the cavity portion more than on the top portion; and

plating the conductive top surface of the workpiece while the effect from the step

of applying the external influence is maintained and while the mask remains moved away from the workpiece.

31. The method according to claim 30 wherein the effect in the step of applying the mask is to create a differential in an amount of at least one additive that is adsorbed on the top portion relative to the cavity portion.

32. The method according to claim 16 wherein the step of applying applies the mask to within .75 mm of the top surface of the workpiece.

33. The method according to claim 16 wherein the step of applying applies the mask to within a range of 0.1 to 0.5 mm of the top surface of the workpiece.

34. The method according to claim 33 wherein the relative movement is at a speed between the range of 1 to 100 cm/s.

35. The method according to claim 30 wherein the at least one additive includes an accelerator.

36. The method according to claim 35 wherein, during the step of plating, more additive is adsorbed on the cavity portion than on the top portion.

37. The method according to claim 35 wherein the step of plating takes place while the effect still exists.

38. The method according to claim 37 wherein the step of plating takes place only while the effect still exists.

39. The method according to claim 30 wherein the step of applying the mask reduces an amount of the additive adsorbed on the top portion for a period of time.

40. The method according to claim 39 wherein the effect in the step of applying the mask is to create a differential in the amount of at least one additive that is adsorbed on the top portion relative to the cavity portion.

41. The method according to claim 40 wherein the at least one additive includes a plurality of additives, comprising both an inhibitor and an accelerator.

42. The method according to claim 41 wherein, after the step of applying the mask, the differential exists as a result of the inhibitor having a stronger adsorption characteristic than the accelerator.

43. The method according to claim 41 wherein, after the step of applying the mask, the differential exists as a result of the inhibitor having a faster adsorption rate than the accelerator.

44. The method according to claim 30 wherein the steps of applying the mask and plating are repeated.

45. The method according to claim 30 wherein the at least one additive includes a plurality of additives, comprising both an inhibitor and an accelerator.

46. The method according to claim 45 wherein, after the step of applying the mask, the differential exists as a result of the inhibitor having a stronger adsorption characteristic than the accelerator.

47. The method according to claim 45 wherein, after the step of applying the mask, the differential exists as a result of the inhibitor having a faster adsorption rate than the accelerator.

48. The method according to claim 30 wherein the step of plating includes the step of providing pulsed power during plating.

49. The method according to claim 30 wherein the step of plating includes the step of providing DC power during plating.

50. The method according to claim 30 wherein the step of applying the external influence causes an area of the top portion which had previously been subjected to the external influence to align with an open area of the mask so that during the step of plating a plating current exists between the area of the workpiece and an anode.

51. The method according to claim 50 wherein during the step of plating, a current

pulse with a first current density is formed within the open area of the movable mask between the anode and the area of the workpiece, the first current density being greater than a second current density that exists in another area of the workpiece that is covered by the moveable mask.

52. The method according to claim 51 wherein, over a period of time, a plurality of current pulses are formed between the anode and different areas of the workpiece.

53. The method according to claim 52 wherein the plurality of current pulses, summed together, equal a DC current provided by a power source.

54. The method according to claim 50 wherein the step of plating includes the step of providing DC power during plating.

55. The method according to claim 54 wherein the step of providing DC power operates in a current controlled mode in which a plating current is held substantially constant.

56. The method according to claim 54 wherein the step of providing DC power operates in a voltage controlled mode in which a plating voltage is held substantially constant.

57. The method according to claim 30 wherein the step of plating plates copper.

58. The method according to claim 30 wherein the step of plating plates a copper alloy.

59. The method according to claim 30 wherein the step of applying the external influence to the top portion causes a differential in a surface resistance between the top portion and the cavity portion.

60. An apparatus for plating a conductive top surface of a workpiece using an electrolyte, the conductive top surface of the workpiece including a top portion and a cavity portion, the apparatus and having at least one additive adsorbed thereon comprising:

an anode used to which power can be applied, thereby creating an electric field between the anode and the top surface of the workpiece and allowing plating of the top surface to occur; and

a mask disposed in spaced relation to the workpiece surface, with relative movement occurring between the mask and the workpiece while the mask is in spaced relation to a first portion of the at least one additive adsorbed on the top portion so that an amount of the first portion of the additive adsorbed on the top portion is reduced, and thereby the amount of conductor plated onto the top portion of the workpiece while plating occurs.

61. An apparatus according to claim 60 wherein the mask in made of an insulator.

62. An apparatus according to claim 60 wherein the mask includes an open area

through which the electrolyte and plating current can passto an area of the workpiece corresponding to the open area of mask during application of power.

63. An apparatus according to claim 62 wherein the mask is shaped so that it does not substantially affect the plating current that is applied to the workpiece.

64. An apparatus according to claim 63 wherein the mask is shaped as a bar.

65. An apparatus according to claim 63 wherein a mask area as compared to the workpiece area is less than 5%.

66. An apparatus according to claim 60 wherein the mask and the workpiece both independently move.

67. An apparatus according to claim 60 wherein the relative movement between the mask and the workpiece results in a linear motion.

68. An apparatus according to claim 60 wherein the relative movement between the mask and the workpiece results in a reciprocating linear motion.

69. An apparatus according to claim 60 wherein the relative movement between the mask and the workpiece results in an orbital motion.

70. An apparatus according to claim 60 wherein the relative movement between the

mask and the workpiece results in a reciprocating orbital motion.

71. An apparatus according to claim 60 wherein the mask comprises an insulator.

72. The apparatus according to claim 60 further including a DC power source that provides DC power during plating.

73. The apparatus according to claim 72 wherein a current pulse with a first current density is formed within the open area of the mask between the anode and the area of the workpiece, the first current density being greater than a second current density that exists in another area of the workpiece that is not covered by the moveable mask.

74. The apparatus according to claim 73 wherein, over a period of time, a plurality of current pulses are formed between the anode and different areas of the workpiece.

75. The apparatus according to claim 74 wherein the plurality of current pulses, summed together, equal a DC current provided by the DC power source.

76. The apparatus according to claim 60 further including a pulsed power source that provides pulsed power during plating.

77. The apparatus according to claim 60 further including a DC power source that provides DC power during plating.

78. The apparatus according to claim 77 wherein the DC power source operates in a current controlled mode in which the plating current is held substantially constant.

79. The apparatus according to claim 77 wherein the DC power operates in a voltage controlled mode in which a plating voltage is held substantially constant.